

**REMARKS****Summary of the Office Action**

Claims 13-16, 20, 21, 34-37, 41, and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujikawa et al. (US 5,995,177) in view of Hebiguchi (US 6,091,473) and Kaneko et al. (US 6,587,162).

Claims 17-19 and 38-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujikawa et al. in view of Hebiguchi, Kaneko et al., and Kawamoto et al. (US 5,151,806).

**Summary of the Response to the Office Action**

Applicants have amended claims 13 and 34 to further define the invention, and added new claims 43-58. Accordingly, claims 13-21 and 34-58 are pending.

**All Claims Define Allowable Subject Matter**

Claims 13-16, 20, 21, 34-37, 41, and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujikawa et al. (US 5,995,177) in view of Hebiguchi (US 6,091,473) and Kaneko et al. (US 6,587,162), and claims 17-19 and 38-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fujikawa et al. in view of Hebiguchi, Kaneko et al., and Kawamoto et al. (US 5,151,806). Applicants respectfully traverse these rejections for the following reasons.

Independent claims 13 and 34, as amended, recite an array substrate for a liquid crystal display device and a method for fabricating a liquid crystal display device, respectively, including a gate line that includes “a gate electrode extending from the gate line by a predetermined length along a second direction perpendicular to the first direction,” and a common line arranged “having a protrusion extending toward the gate line along the second direction spaced apart from the gate line by a predetermined distance,” wherein “the

predetermined length of the gate electrode is greater than the predetermined distance between the protrusion and the gate line.”

In contrast to Applicants’ claimed invention, Fujikawa et al., Hebiguchi, Kaneko et al., and Kawamoto et al. are all completely silent with regard to relative spacings between a common line protrusion and gate electrode length. Moreover, Applicants respectfully assert that the combined teachings of any of Fujikawa et al., Hebiguchi, Kaneko et al., and Kawamoto et al. fail to teach or suggest the features recited by amended independent claims 13 and 34, and hence dependent claims 14-21 and 35-42.

In addition, the Office Action admits that “Fujikawa does not appear to explicitly specify that the storage capacitance common line has a protrusion and a first capacitor electrode overlaps a portion of the common line and protrusion of the common line to form a first storage capacitor, the first capacitor electrode connected to the thin film transistor.” Accordingly, the Office Action relies upon Hebiguchi to allegedly teach common electrodes extending from a common electrode wiring line and a capacity structure “so that capacity is secured and capacity generated by the capacity generating electrodes functions as the removal of the effect of parasitic capacity when liquid crystal is driven and storage capacity for holding signal voltage (Column 6, Lines 30-49).” In addition, the Office Action alleges that “Hebiguchi is evidence that ordinary workers in the field of liquid crystals would have had the reason, suggestion, and motivation to overlap a capacity generating electrode with a common electrode protruding from a common electrode wiring line and connecting the capacity generating electrode and drain for securing capacity and for removal of the effect of parasitic capacity when liquid crystal is driven and storage capacity for holding signal voltage.” Thus, the Office Action concludes that “it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify

Fujikawa in view of Hebiguchi for an array substrate in which capacity is secured, the effects of parasitic capacity are removed, and for storage capacity for holding signal voltage.” Applicants respectfully disagree.

First, Applicants respectfully assert that Fujikawa et al. is directed toward an active matrix substrate of an LCD device having pixel and common electrodes disposed on opposing substrates, i.e., twisted neumatic (TN) LCD device, whereas Hebiguchi et al. is directed toward an active matrix substrate of an LCD device having pixel and common electrodes disposed on a single substrate, i.e., in-plane switching (IPS) LCD device. Accordingly, Applicants respectfully assert that Fujikawa et al. and Hebiguchi et al. are directed to completely non-analogous technologies, and as such, one of ordinary skill in the art would not look to structures of an IPS LCD device to modify the structure of a TN LCD device. Thus, Applicants respectfully assert that the Office Action has not established any proper motivation to modify the TN LCD device of Fujikawa et al. with the IPS LCD device of Hebiguchi et al., and thus, has further not established a *prima facie* case of obviousness.

Second, Applicants respectfully assert that modifying the TN LCD device of Fujikawa et al. with the teachings of an IPS LCD device of Hebiguchi et al. would render the TN LCD device of Fujikawa et al. unsatisfactory for its intended purpose. Specifically, Applicants respectfully assert that following the teachings of Hebiguchi et al., with regard to relative disposition of common line and alleged protrusions extending from the common line of the IPS LCD device, would cause significant detrimental capacitive influences upon the pixel electrode of the TN LCD device of Fujikawa et al., i.e., parasitic capacitance coupling. Accordingly, modifying the TN LCD device of Fujikawa et al. to form a common line and protrusions extending from the common line would induce detrimental capacitive influences upon the pixel electrode of

Fujikawa et al., which would render the TN LCD device of Fujikawa et al. inoperable and unsatisfactory for its intended purpose. Thus, Applicants respectfully assert that the Office Action has not established any proper motivation to modify the TN LCD device of Fujikawa et al., and thus, has further not established a *prima facie* case of obviousness.

Third, Applicants respectfully assert that Hebiguchi et al. fails to provide any proper motivation with which to modify Fujikawa et al. For example, the Office Action alleges that “Hebiguchi has this structure so that capacity is secured and capacity generated by the capacity generating electrodes functions as the removal of the effect of parasitic capacity when liquid crystal is driven and storage capacity for holding signal voltage (Column 6, Lines 30-49).” However, Applicants respectfully assert that the IPS LCD structures disclosed by Hebiguchi et al. are wholly incompatible with the TN LCD structure disclosed by Fujikawa et al. Specifically, incorporating the capacity generating electrode 65 of Hebiguchi et al. would cause undesirable parasitic capacitive coupling with the pixel electrode of Fujikawa et al., thereby resulting in an inoperable TN LCD device. Accordingly, because modifying the TN LCD device of Fujikawa et al. to form a capacity generating electrode would induce detrimental capacitive influences upon the pixel electrode of Fujikawa et al., which would render the TN LCD device of Fujikawa et al. inoperable and unsatisfactory for its intended purpose, Applicants respectfully assert that the Office Action has not established any proper motivation to modify the TN LCD device of Fujikawa et al., and thus, has further not established a *prima facie* case of obviousness.

Furthermore, Applicants respectfully assert that Kaneko et al. fails to teach or suggest anything with regard to forming a black matrix to shield portions of a gate line, a drain line, and a common line “to contribute to improved yield by preventing disconnection from occurring in a layered line portion of lead terminal portion of an active matrix liquid crystal display device

(Column 1, Lines 5-12),” as alleged by the Office Action. Specifically, Applicants respectfully assert that Kaneko et al. is explicitly directed toward preventing electrolytic corrosion at intersections of gate and drain lines. Accordingly, Applicants respectfully assert that the Office Action’s allegation that Kaneko et al. explicitly teaches forming a black matrix overlapping gate, drain, and common lines is a gross mischaracterization of Kaneko et al. Thus, the Office Action fails to establish a *prima facie* case of obviousness with regard to overlapping gate and common lines with a black matrix.

Moreover, Applicants respectfully assert that the Office Action’s alleged motivation is not found *anywhere* in Kaneko et al. Specifically, Applicants respectfully assert that the disclosure cited by the Office Action says *absolutely nothing* with regard to overlapping gate and common lines with a black matrix. Thus, the Office Action further fails to establish a *prima facie* case of obviousness with regard to overlapping gate and common lines with a black matrix.

Applicants further assert that Kawamoto et al. fails to remedy any of the deficiencies of Fujikawa et al., Hebiguchi et al., and/or Kaneko et al. as detailed above. Accordingly, Applicants respectfully assert that combining Kawamoto et al. with any of Fujikawa et al., Hebiguchi et al., and/or Kaneko et al. fails to establish a *prima facie* case of obviousness with regard to at least amended independent claims 13 and 34, and hence dependent claims 14-21 and 35-42.

MPEP §2143.03 instructs that “[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 409 F.2d 981, 180 USPQ 580 (CCPA 1974).” Accordingly, because the applied art does not teach or suggest **all the claim limitations**, Applicants respectfully assert that the Office Action has not established a *prima facie* case of obviousness.

Since the Office Action fails to meet the requirements for establishing a *prima facie* case of obviousness as to independent claims 13 and 34, claims 13 and 34 are not obvious.

Furthermore, since claims 14-21 and 35-42 depend from claims 13 and 34, respectively, and incorporate all the features of claims 13 and 34, claims 14-21 and 35-42 are not obvious at least for the above reasons for which independent claims 13 and 34 are not obvious. Thus, Applicants respectfully request that the rejections of claims 13-21 and 34-42 under 35 U.S.C. § 103(a) be withdrawn.

#### **New Claims 43-58**

Applicants respectfully assert that new claims 43-58 are allowable for at least the reasons set forth above. Specifically, Applicants respectfully assert that none of Fujikawa et al., Hebiguchi et al., Kaneko et al., and/or Kawamoto et al., whether taken singly or combined, teach or suggest the combination of features recited by new independent claims 43 and 51, and hence dependent claims 44-50 and 52-68.

#### **CONCLUSION**

In view of the foregoing, Applicants respectfully request reconsideration and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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